

GRADE 3 STANDARDS AND LEARNING ACTIVITIES

Strand: Number Sense and Operations**NUMBER SENSE**

3.NSO-N.1. Exhibit an understanding of the base 10 number system by reading, modeling, and writing whole numbers to at least 10,000; demonstrate an understanding of the values of the digits.

Example: Write 793 for the number "seven hundred ninety-three."

3.NSO-N.2. Represent, compare, and order numbers to 10,000 using various forms, including expanded notation and written out in words.

Example: Show 3,206 in expanded form: $(3 \times 1,000) + (2 \times 100) + 6$. Write it out in words: three thousand, two-hundred six.

3.NSO-N.3. Round whole numbers through 10,000 to the nearest 10, 100, and 1,000.

Example: Round 1,548 to the nearest ten.

3.NSO-N.4. Recognize sets to which a number may belong (odd numbers, even numbers, and multiples of numbers through 10). Identify the numbers in those classes.

Example: Find multiples of 7 between 1 and 35 (7, 14, 21, 28, 35).

FRACTIONS

3.NSO-F.5. Identify and represent fractions (between 0 and 1 with denominators through 10) as parts of unit wholes and parts of a collection.

Example: Fold a piece of paper in half and then in half again creating fourths. Shade 2 sections or $\frac{2}{4}$ of the sheet of paper. Now fold the paper in half three times. Shade 3 sections of the sheet of paper or $\frac{3}{8}$.

3.NSO-F.6. Recognize, name, and use equivalent fractions with denominators 2, 3, 4, and 8; place these fractions on the number line; compare and order them and relate the number line to a ruler.

Example: Write the equivalent fractions for $\frac{1}{2}$ an inch using the denominators of 4 and 8.

3.NSO-F.7. Know the meaning of 0.75, 0.50, and 0.25 as they relate to money; know that fractions and decimals are two different representations of the same concept.

Example: Fifty cents is what fraction of a dollar? Seventy-five cents is what fraction of a dollar?

3.NSO-F.8. Know that any fraction can be written as a sum of unit fractions.

Example: Write $\frac{3}{4}$ as a sum of its unit fractions ($\frac{1}{4} + \frac{1}{4} + \frac{1}{4}$).

3.NSO-F.9. Model and represent a mixed number (with denominator 2, 3, or 4) as a whole number and a fraction.

Example: Represent $\frac{5}{3}$ as a mixed number.

Strand: Number Sense and Operations (continued)

COMPUTATION AND OPERATIONS

3.NSO-C.10. Demonstrate an understanding of and the ability to use conventional algorithms for the addition and subtraction of up to five-digit whole numbers.

Example: $85,412 - 42,747 = ?$ Explain your method.

3.NSO-C.11. Add and subtract up to four-digit whole numbers accurately and efficiently.

Example: $875 + 533 = ?$

3.NSO-C.12. Use concrete objects and visual models to add and subtract common fractions (halves, thirds, fourths, sixths, and eighths) with like denominators.

Example: Using the model of an 8-slice pizza, if one child eats $\frac{2}{8}$ of the pizza and two others each take $\frac{1}{8}$, what fraction of the pizza is left?

3.NSO-C.13. Solve problems involving addition and subtraction of money amounts in decimal notation.

Example: Pete earns fifty cents for doing chores each week. The chart below shows his savings so far. If Pete continues to save at the same rate, how much money will he have saved at the end of week 8? end of week 10?

Pete's Savings

| <i>Hours Worked</i> | <i>Money Saved</i> |
|---------------------|--------------------|
| 1 | \$0.50 |
| 2 | \$1.00 |
| 3 | \$1.50 |
| 4 | \$2.00 |

3.NSO-C.14. Know multiplication is the result of counting the total number of objects in a set of equal groups.

Example: Write a number sentence for 3 groups of 5 objects.

3.NSO-C.15. Know division (\div) as another way of expressing multiplication, i.e., that division is the inverse of multiplication.

Example: Find other facts related to $2 \times 3 = 6$ (e.g., $6 \div 2 = 3$ or $6 \div 3 = 2$).

3.NSO-C.16. Know multiplication facts through 10×10 and related division facts. Use these facts to solve related problems.

Example: What is 9×8 ? What is $72 \div 9$? If $3 \times 5 = 15$, then what is 3×50 ?

3.NSO-C.17. Solve simple problems involving multiplication of multidigit whole numbers by one-digit numbers.

Example: $2,431 \times 2 = ?$ Explain your method.

3.NSO-C.18. Solve division problems in which a multidigit whole number is evenly divided by a one-digit number.

Example: What is $125 \div 5$?

Strand: Number Sense and Operations (continued)**COMPUTATION AND OPERATIONS (CONTINUED)**

3.NSO-C.19. Multiply up to two-digit whole numbers by a one-digit whole number accurately and efficiently.

3.NSO-C.20. Use the commutative (order) and identity properties of addition and multiplication on whole numbers in computations and problem situations.

Example: Multiply 7, 2, and 5. Now multiply them in the order 2, 5, and 7. Do they yield the same answer? Which was easier? Why?

3.NSO-C.21. Know and apply the special properties of 0 and 1 in multiplication.

Example: Multiply 2, 4, 34, and 53 by 0. Multiply the same numbers by 1. In your own words, make a statement about multiplying by 0 and 1.

3.NSO-C.22. Use multiplication and division fact families to understand the inverse relationship of these two operations and to compare and check results.

Example: Find other facts related to $3 \times 8 = 24$ ($24 \div 8 = 3$ or $24 \div 3 = 8$).

Given the following everyday actions, determine the math operation and then use the inverse operation:

Gain 10 yards in football from the 40-yard line.

Withdraw \$20 from a \$100 saving account.

Slice a pizza into 8 equal slices.

ESTIMATION

3.NSO-E.23. Estimate the sum and difference of two numbers with three digits (sums up to 1,000) and judge reasonableness of estimates.

Example: Your friend says that $79 - 22 = 27$. Without solving, explain why you think the answer is wrong.

3.NSO-E.24. Understand and use the strategies of rounding and regrouping to estimate quantities, measures, and the results of whole-number computations (addition, subtraction, and multiplication) up to two-digit whole numbers and amounts of money to \$100 and to judge the reasonableness of answers.

Example: You have \$20. Do you have enough to buy all four items? Explain how you made your estimate.

Hat — \$4.52

Socks — \$1.99

Sweater — \$9.41

Scarf — \$3.95

Strand: Patterns, Relations, and Algebra

3.PRA.1. Create, describe, and extend symbolic (geometric) patterns and addition and subtraction patterns.

Example: Use dot paper to extend the "growing squares" to 64 squares.

3.PRA.2. Select appropriate operational and relational symbols to make an expression true.

Example: If $4 _ 3 = 12$, what operational symbol goes in the blank?

3.PRA.3. Determine values of variables in simple equations involving addition, subtraction, or multiplication.

Example: Solve the following: $4106 - \nabla = 37$, $5 = \bigcirc + 3$, and $\nabla - \bigcirc = 3$.

3.PRA.4. Know and express the relationships among linear units of measure, i.e., unit conversions.

Example: How many feet are in one yard? How many inches are in one foot?

3.PRA.5. Extend and recognize a linear pattern by its rules.

Example: Find the number of legs on 6 dogs. Create a table and extend the pattern. Explain your method (e.g., counted by 4s or multiplied the number of dogs by 4).

| | | | | |
|--------------------|---|---|----|---|
| Number of dogs | 1 | 3 | 4 | 6 |
| Number of dog legs | 4 | | 16 | |

Strand: Geometry

3.G.1. Compare and analyze attributes and other features (e.g., number and shape of sides, faces, corners, right angles) of two-dimensional geometric shapes, especially the attributes of triangles (isosceles, equilateral, right) and quadrilaterals (rectangle, square).

3.G.2. Describe, model, draw, compare, and classify three-dimensional and two-dimensional shapes, especially circles and polygons (e.g., triangles and quadrilaterals).

Example: Use a geoboard to make a quadrilateral. How do you know it is a quadrilateral?

3.G.3. Identify angles as right, acute (less than a right angle), or obtuse (greater than a right angle).

Example: Draw two rays that meet in an obtuse angle. Use flexible straws or pipe cleaners to illustrate an obtuse angle.

3.G.4. Identify and draw lines that are parallel, perpendicular, and intersecting.

Example: Use the markings on the gymnasium floor to identify two lines that are parallel. Place a jump rope across the parallel lines and identify any obtuse angles created by the jump rope and the lines.

3.G.5. Identify and draw lines of symmetry in two-dimensional shapes.

Example: Draw a rectangle and then draw all its lines of symmetry. Discuss your findings. Compare by doing the same activity with a square.

3.G.6. Apply techniques such as reflections (flips), rotations (turns), and translations (slides) for determining if two shapes are congruent.

Strand: Geometry *(continued)*

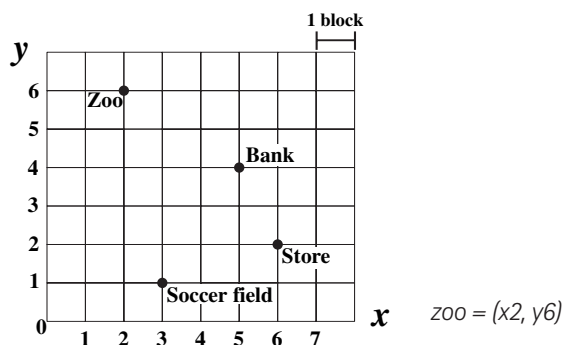
3.G.7. Using ordered pairs of whole numbers and/or letters, locate and identify points on a grid.

Example: Use the map below to answer the following questions.

What are the coordinates of the soccer field?

Which building is at x5, y4? Which is at x6, y2?

Moving along the grid lines, how many blocks is it from the bank to the zoo?



Strand: Measurement

3.M.1. Demonstrate an understanding of such attributes as length, area, and weight; select the appropriate type of unit for measuring each attribute using both the U.S. customary and metric systems.

Example: How many square tiles do we need to cover a teacher's desk? Explain your method.

3.M.2. Carry out simple unit conversions within a system of measurement such as hours to minutes and cents to dollars.

Example: How many minutes are in 3 hours?

3.M.3. Identify time to the nearest 5 minutes on analog and digital clocks using a.m. and p.m. Compute elapsed time using a clock (e.g., hours and minutes since ...) and using a calendar (e.g., days since ...).

Example: You start a project at 9:10 a.m. and finish the project at 9:42 a.m. How much time has passed?

3.M.4. Estimate and find area and perimeter of a rectangle and triangle using diagrams, models, and grids or by measuring.

Examples: Find the perimeter of a table in centimeters. Explain your method. Find the area of the same table and explain.

Strand: Data Analysis, Statistics, and Probability

3.DASP.1. Collect and organize data using observations, measurements, surveys, or experiments.

Example: Conduct a survey with students in the class to determine their favorite pizza place. Based upon the class' response, predict the favorite brand of your peers in other 3rd grade classes within the school. Create a pictograph illustrating the findings.

3.DASP.2. Construct, identify the main idea, and make predictions from various representations of data sets in the forms of tables, bar graphs (horizontal and vertical forms), pictographs, and tallies.

3.DASP.3. Record all possible outcomes for a simple event using concrete objects.

Example: It is raining in your neighborhood. Is it certain, likely, unlikely, or impossible that the tree in your front yard will get wet?

3.DASP.5. List and count the number of possible combinations of objects from 2 sets.

Example: Using pictures of two shirts and three pairs of pants from a catalogue, how many different outfits can you make?